ADVANCED MANAGEMENT

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Parkinson's Law

THE London Economist's November 19, 1955 issue presented some very provocative data to demonstrate that the size of an administrative staff will at least grow at an annual rate of 6% even if the basic "work demands" diminish. The author half-humorously called it "Parkinson's Law" (after nobody).

The Economist's article gave 2 pointed illustrations. A research study of the Royal Navy revealed that 2,000 Admiralty Officials of 1914 had become 3,569 in 1922, an average increase of 5.6% per year. In the meantime, the Navy had diminished by one-third in men and two-thirds in ships.

A similar study of the colonial office between 1935 and 1954 revealed that while the number of British Colonies were steadily shrinking, the number of officials rose from 372 to 1,661, an average increase of 5.8% per year.

Similar analyses have been made in commercial, industrial, and financial organizations in this country and have found that Parkinson's law applies to them. Some companies call it "Empire Building." However, one company has labeled it "Parkinson's Disease" for like any disease it dissipates the strength of the organism upon which it is festering.

After reading a reprint in Fortune of the Economist's article, the President of one company conducted an analysis and found that Parkinson's Law fitted his company perfectly. The organization's administrative staff had grown from 212 to 375 over the last ten years with only a comparatively modest increase in work load.

A basic cause of this malady is that many people place their own selfish interests above the interests of their organization. Other factors are:

(1) Some managers feel that their importance rises in direction proportion to the number of people that they have working for them.

(2) Each additional manager, supervisor, organizational unit or function creates additional work for the existing work force (additional reports, memos, conferences, services, etc.).

The location and curing of this disease is easy, if it is discovered in the early stages and people want to do something about it. If not "surgery" may be necessary at some point. The best condition, however, is one in which "preventive medicine" is all that is required.

These factors have been very effective in keeping the size of staffs in line:

(1) Establish tight control over personnel costs.

(2) Enlarge existing jobs through training and delegation instead of adding new ones.

(3) Place greater emphasis on a high standard of performance and regularly appraise results.

(4) Have compensation based on contribution or service rendered, not the number of people supervised.

(5) Review functions periodically, weighing costs against benefits.

This is a continuing program requiring constant attention. To reach its maximum effectiveness it must have a proper attitude and full cooperation of every member of the organization.

John B. Joynt
National President

This article is based on information supplied by the American Institute of Accountants, the national professional organization of certified public accountants, and checked for technical accuracy by the Internal Revenue Service.

Business Decisions That Affect Your Tax Return

LONG-RANGE tax planning in today's business world of high tax rates is no longer "big business foolishness". Last-minute tax worrying with no year-around tax thinking can result in the loss of sizeable savings for small and medium-sized businesses when it comes time to file a tax return.

For example, assume that last summer you were forced to replace your air conditioner. You shopped around and found you could either sell your old unit to a private party for $500, or a dealer in town would give you a trade-in allowance of $500 on it. That seemed like six-of-one-half-a-dozen-of-another to you; so without thinking—or worrying—about tax matters you traded in the old air conditioner.

To prove how such a seemingly simple business decision such as this can affect how much tax you will have to pay, let's assume further that the air conditioner which you traded had originally cost $2500 and that you had taken $1000 in depreciation on it. This meant its cost for tax purposes was $1500, and you were going to "lose" $1000 whether you accepted the dealer's trade-in allowance of $500 or sold to the private party for $500.

So far still six-of-one-half-a-dozen-of-another, but now since you elected to trade-in your old air conditioner, let's see how you can claim a deduction on a tax return for your $1000 loss. The answer is simple. You can't. All you can do is add the amount of the loss to the cost of your new unit, and eventually receive tax credit for your loss in the form of slightly higher depreciation deductions.

On the other hand, if you had made a bona fide sale of your old unit to the private party and a separate purchase of a new unit from a dealer, you would have established a $1000 loss which could be claimed as a loss deduction on a tax return and used to offset regular income.

It is not always true, of course, that a loss deduction on the tax return is worth two in the bush of depreciation, but a general rule to consider when you are trying to decide whether it would be more advantageous taxwise for you to sell or trade-in an asset is: sell "loss" property to obtain a deduction, and trade "profit" property to avoid the tax which must be paid on any profit realized from the sale of an asset.

You may find that you have sold yourself into a capital gains tax or traded yourself out of a loss deduction if you have not figured your depreciated costs correctly. This is a matter you should discuss with a certified public accountant. Not only can he verify the accuracy of your mathematical computations, but he can also explain the advantages and disadvantages of the various methods used to compute depreciation. It could be that the method you used or are using is not the one most suited to your business needs from a tax standpoint.

For example, if you asked a CPA whether you should use the straight-line or declining balance method to depreciate your new air conditioner, one of the first questions he might ask you would be: what are your cash requirements and what are your profits likely to be? If you are thinking of expanding and need additional cash within the next few years, he might recommend that you use the "new" declining balance method to compute depreciation.

The declining balance method "speeds up" or increases depreciation rates. This starts the chain reaction to your objective of retaining cash in the business, because when you increase depreciation rates you also increase allowable depreciation deductions on your tax return. The amount you may write-off the first year is twice what it would be if you used the straight-line method; so by applying a $1000 instead of $500 depreciation deduction against your regular income, you are going to reduce your taxes, and cash that does not have to be paid out in federal taxes can be retained in the business for expansion purposes.

It seems all good things eventually come to an end, however, and while in the first year the declining balance depreciation rate may be double that of the straight-line, this differential diminishes in succeeding years until declining balance deductions are even less than they would be under the straight-line method. This is why it is important that you consider current and future earnings before you select a depreciation method.

For example, if your current earnings are low, or if you are putting in a new line of merchandise and the results of this expansion will take a few years to show in your earnings, it might be more advantageous taxwise for you to use the straight-line method of computating depreciation.

The straight-line method does not "speed up" depreciation deductions. It spreads them out equally over the estimated useful life of the asset; so when you use a straight-line method you are saving, in a sense, for a rainy day. When your earnings improve or increase, you will have more substantial depreciation deductions to apply against those earnings. There usually is no point in increasing a loss or reducing low earnings by claiming additional depreciation deductions when you do not need them.

A point to remember when you are trying to decide whether to buy new or used equipment is that second-hand equipment *must* be depreciated by the straight-line method. This tax factor should be considered, because loss of the opportunity to use the declining balance method with its rapid write-off feature may cancel any immediate savings effected by the purchase of used equipment.

The matter may have been decided and forgotten many years ago, but a basic question businessmen should consider from time to time—and one which has many tax implications—is whether to do business as a proprietorship,

(*Continued on page 30*)

Dr. Beckman is nationally known as an educator, author and consultant to management. He has been Professor of Marketing at Ohio State University since 1932 and a member of the Faculty since 1920. He is Visiting Professor at the University of Colorado, and has done much consultation work for various branches of the U. S. government. Dr. Beckman is a Member of the National Distribution Council, on the Advisory Board of the Hillel Foundation, served on the Advisory Committee to the Bureau of Foreign and Domestic Commerce for several years, been on the Committee on Business Research of the National Conference of State University Schools of Business (1939-42), is an ex-Vice President and Director of the American Marketing Association, and ex-Vice President of the American Statistics Association. Dr. Beckman is the author or co-author of over a dozen books and many articles relating to business problems.

THEODORE N. BECKMAN

The Value Added Concept As A Measurement Of Output

By Theodore N. Beckman

Professor of Business Organization
Ohio State University
and Consulting Economist

In a very broad sense the term "management" has at times been used to refer to the control of activities, whatever their nature. Thus, we often hear complaints that a certain person cannot even "manage" his own affairs—business or personal—let alone those of others. We even speak occasionally of "self-management," thus using the term in a strictly subjective manner. In the most accepted sense, however, the term management is used to cover the planning, organizing, and controlling of the activities of an *organization.*

Why Output is a Basic Measurement of Management. Essentially, management has to do with the most effective and economical use of all factors of production and their component parts in the accomplishment of the organization's objectives, the main one of which is that of producing a desired output. This output may be in the form of goods extracted, manufactured, and/or marketed, or in services rendered. To this end it becomes necessary to establish standards of performance and then to measure actual performance against these standards for a proper evaluation of what has been accomplished and as a means of obtaining enhanced efficiency in the future.

Because a defined and desired output is the principal aim and purpose of an organization, and because each of the factors of production or components thereof must necessarily be related to it, output becomes the basic measurement of management. It is, therefore, of utmost importance, first, that we have a correct conception of the output that is to be measured and, second, that such output be properly measured. It makes a lot of difference, for example, whether we are to conceive of output as that of a business enterprise, a business establishment, or a business function. It is even of greater importance to distinguish between what output was created or added to by the given enterprise, establishment, or function and what was created previously by other enterprises or establishments.

Inadequacy of Current Measurements of Output. In general, output of business enterprises is now measured in terms of production, shipments, sales, or receipts. Receipts are invariably expressed in values, which are subject to fluctuations in the purchasing power of the dollar, and are not especially applicable to other than service concerns. When production, shipments, or sales (gross or net) are expressed in values, they suffer from the same shortcoming as receipts, (as is, unfortunately, also true of value added). When expressed in terms of so-called physical volume, they are in reality nothing but values in constant dollars. Even when production, shipments, or sales are measured in physical units, the results may be of little value in measuring output, except perhaps in such commodities as steel or cement, because the units do not remain unchanged over any extended period of time. A 1957 model of a given make of automobile is certainly a different product even from the same make of car of an earlier vintage. The same thing is true of tires, batteries, and the vast majority of products in use today.

However, the most important weakness in all these measurements of output is that they all involve considerable duplication. Thus, in the production, shipments, or sales of a manufacturer, no matter how expressed, are included the costs of materials and supplies and purchased parts that were produced by others, in addition to what was added by the manufacturer in question. Moreover, this sort of duplication varies substantially from enterprise to enterprise. For example, one manufacturer might conceivably make a finished product in a completely integrated operation from the raw materials on. In such an instance the duplication would be insignificant or nonexistent. At the other extreme, a manufacturer may merely assemble a finished product from parts and supplies made by others, in which instance the duplication would be several times the contribution made by such a manufac-

turer. Between these two extremes, there are all sorts of gradations and variations in this regard. This at once exaggerates the contribution of some, understates that of others, and in all cases makes comparison futile and misleading.

What has just been stated should not be taken to imply any lack of value in data on production, shipments, sales, or receipts. Such data are still important for purposes of planning; budgeting; setting quotas; determination of rental values; figuring commissions, other operating expenses, gross and net profits; and for many other uses. What it does mean is that they are found wanting as measurements of output for basic management purposes and especially for determining the real contribution made by the business unit or function that is the subject of measurement.

Value Added Affords Best Measurement of Output. It is believed that value added best measures the output of an establishment, an enterprise, an industry, or any other segment or sector of our economy. In time, this concept may also be used to measure the output that may be attributed to a given business function or process. In any event, it can be used in that manner internally by a business establishment or enterprise.

AT PRESENT the use of value added is more or less restricted to the field of manufacturing and even there it is not as widely used outside the Census of Manufactures and other governmental agencies as is warranted. What is needed is wide application of this concept to all phases of the economy and strong attempts to do so are now being made by a number of potent organizations and others interested in progress in economic thought.

Nature of Value Added Concept as Used by Census of Manufactures. The value added concept has been used by the Bureau of the Census in connection with its censuses of manufactures for over a quarter of a century. As stated in its various appropriate publications, "Value added by manufacture is calculated by subtracting the cost of materials, supplies, and containers, fuel, purchased electric energy, and contract work from the total value of shipments." It thus represents the difference between the selling value of products shipped or delivered and the cost of materials, supplies, and containers, plus the cost of fuel, purchased electric energy, and contract work. Basically, then, the difference represents the net value of the operations of the reporting establishment itself without any admixtures of the labors or operations of other establishments and this is presumed to measure the value added by the process of manufacture. It is a measure of the net output of the establishment, industry, industry group, or all manufacturing industries, as the case may be. Even then it is subject to certain limitations.

HISTORICAL NOTE: *During* 1951 *and since then the author has made use of the value added concept in his business consulting work usually in relation to distribution and sometimes in a manner not previously employed, as witnessed by reference to a client's testimony (front page of* Wall Street Journal *for Wednesday, August* 1, 1951, *under the column headed "Tax Report") concerning the "economic theory that the greater the value added in the process of manufacture, the greater rate of return should be allowed." At the Twenty-fifth Annual Boston Conference on Distribution in* 1953, *Robert J. Eggert (then Manager, Program Planning Dept., Ford Division, Ford Motor Company) ably spoke on the very same topic and under the identical title in which he pointed out the need for applying the value added concept to the field of distribution. At the December Conference of the American Marketing Association in* 1954 *an entire session was devoted to the subject at which two rather comprehensive papers were presented, one by the author on "The Value Added Concept as Applied to Marketing (Institutions) and Its Implications" and the other by David D. Monieson (then of the faculty of Queens University, Kingston, Ontario) "On Measuring Value Added by Marketing." Since then a report was prepared under the author's supervision by Robert D. Buzzell of The Ohio State University and David D. Monieson of the faculty of the Graduate College of the University of Toronto, Canada. This report was prepared under the auspices of and for presentation by The Domestic Distribution Committee and The Business Statistics Committee of The Chamber of Commerce of the United States in* 1956 *and is now being distributed by the Chamber to a select list, together with a simplified pamphlet version of the report. In addition, the subject has been up for discussion by the National Distribution Council and especially by the National Association of Wholesalers, and was discussed by the author two days ago at the Twenty-Eighth Annual Boston Conference on Distribution.*

Reasons for Census Use of Value Added by Manufacture. For some years there has been a tendency for the Census of Manufactures to shift emphasis more and more from value of products shipped to value added by manufacture as a measure of the contribution to the economy of the manufacturing sector and parts thereof. As a matter of fact, in its annual surveys of manufactures value added by manufacture has completely replaced the value of production or shipments, although, as previously indicated, there are still some very important uses to data on the latter. Among the major reasons for this shift in emphasis was a desire to avoid duplication. This is clearly expressed in the following excerpts from the Bureau's publications:

> *"The value of products is not a satisfactory measure of the importance of a given industry, because only part of this value is actually created within the industry. Another part and often a much larger one, is contributed by the value of the materials used. The aggregates for cost of materials and value of products include large amounts of duplication due to the use of the products of some industries as materials by others." . . . "Statistics of 'value added by manufacture' are almost entirely free from the duplication which is a factor in the total value of products." . . .*[1]

ANOTHER reason was the Bureau's conviction that value added by manufacture is a fairly accurate measure of what is accomplished or created by a given industry and affords the best means for comparison of the economic contribution of one industry with that of another. This can be clearly discerned from the following excerpt in one of its publications:

> *"'Value added by manufacture' measures the approximate value created in the process of manufacture. It, therefore, provides the most satisfactory census measure of the relative importance of given industries for the United States as a whole or for geographic areas."*[2]

Essence of the Value Added Concept as Now Used. Theoretically, the treatment of the value added concept by the Census of Manufactures is functional in character, since it is presumed to measure the contribution made by the *process* of manufacture as contrasted with the process of marketing or any other process. That is certainly the avowed purpose repeatedly stated in appropriate census publications. Actually, however, the concept is treated institutionally, in that the value added by manufacture is computed on an establishment basis and thus covers *all* activities performed by the manufacturing establishment including those of distribution or marketing. This would seem to be inevitable under existing conditions of gathering such information on a broad scale by a govern-

[1] *Fifteenth Census of the United States. Manufactures:* 1929, *Volume I, United States Government Printing Office, Washington:* 1933, *pages* 6 *and* 8. *In approximately identical phrasing the same substance is expressed on page* 18 *of Volume II of Census of Manufactures:* 1947, *U.S.G.P.O.:* 1949.

[2] *Annual Survey of Manufactures:* 1949 *and* 1950, *U. S. Government Printing Office, Washington:* 1952, *p.* 8.

ment agency or by a trade association, because of the current state of the arts in accounting, at least in practical application. This means that for practical reasons the measurement of value added must for the present be on an institutional rather than a functional basis, except for more detailed internal operation analysis within an enterprise.

Again, the word "value" as part of value added is used in the same practical sense as it is used in connection with value of products or value of shipments. To be sure, value is fundamentally a subjective quality involving the satisfactions to human beings mainly as consumers and can be truly known only to the human being involved, assuming full consciousness on his part of such satisfactions. Certainly, there is no way of practically measuring such satisfactions and their differing intensities except through expressions in the market place in the form of prices. It is in this latter sense that the term value is used. It is assumed that the price a person will pay for a product or service is in general a reasonable measure of its value to him. Without at this time going into further theoretical discussions of the nature of economic value, suffice it to say that there are other good reasons for treating it in the common sense and practical way in which it is used in connection with the value added concept.

FINALLY, the term value added is used in the same sense as value created or value produced. This is in line with the best current economic thinking that production is the creation of economic values and that such values are created through the addition of utilities, which are capacities in goods or services to satisfy human wants. Essentially, there are four types or classes of utilities: form, place, time, and possession. *Form* utility is created in any extracting, processing, or manufacturing operation which converts or *transforms* scarce resources such as raw materials or semi-manufactures to increasingly satisfying states. An automobile manufacturer who assembles a completed product from various parts and supplies purchased by him creates form utility, just as does a canner who processes the raw tomatoes by canning. *Place* utility is created when a product or service is made available where the customer wants it. For this purpose, goods must be *transferred* from where they are first available to the next place and on until they reach their final destination in business or for ultimate consumer use. *Time* utility is created when the product or service is made available to the customer when he wants it. *Possession* utility is created when the product or service is at the user's command, i.e., in his possession, legally and physically, as through the transfer of title to goods.

It is now generally recognized among economists and other students of the subject that the creation of these utilities spells the creation of economic values and that this is the essence of production. This means that whoever creates these utilities is engaged in production, so that a wholesaler or a retailer who normally creates place, time, and possession utilities is as much a producer as is a processor who changes a product from one form to another. It also means that all who are engaged in the creation of utilities or economic values are productive and, by their work, add value and make a contribution to our economy.

Advantages from Use of Value Added Concept Throughout the Economy. It stands to reason that the adoption of the value added concept in the measurement of output in all sectors of the economy including farming, mining, and distribution, would have the same advantages as those derived from its use in connection with manufacturing. In the first place, it is the best reasonably available *absolute* measure of the value created in the process of whatever part of the economy is being measured. It measures, without any duplication, what the activities in question have actually contributed to our society in terms of enhanced value of goods and services through the creation of utilities.

Second, value added is the best reasonably available *relative* measure of value created that can be used for proper and fairly accurate comparison with anything else similarly measured. In this manner, it will be possible for the first time to make proper comparison between the economic contribution made, for example, by farming, manufacturing, mining, marketing, and certain services. Also, it would make possible a proper comparison of one segment of, say, distribution like wholesaling with another like retailing or of one type or of wholesaling or retailing with another.

Third, use of the concept will help to view costs in their proper perspective. While cost is a measure of *input* or of what a business spends or puts into its activities, value added is a measure of the *output* produced by such costs. Value added is thus really the value received for the costs incurred or for the input in terms of labor, entrepreneurial management, capital, and other factors of production. Not only is it essential that the two should not be confused or used interchangeably except from a strictly social viewpoint according to which income and outgo must necessarily balance, but it is also essential that costs should not be viewed by themselves without relation to value added. To look at costs by themselves, without knowing what was gotten for them is hardly scientific and, in fact, quite misleading.

FOURTH, application of the value added concept to any part of the economy would necessarily result in improved public relations. As in manufacturing, where it has been used for some time, it would tend to shift emphasis from costs and wastes to value added and from a negative to a positive and constructive approach to the problems involved.

A Prerequisite to Measurement of Productivity. As may be surmised from what has already been stated, value added is not in itself a measurement of productivity. It merely measures production, i.e., the result of productive activity involved in the creation of economic values, not the rate at which such production has proceeded with reference to some factor of production or a part thereof. Unfortunately, it is a common error to confuse production with productivity. For example, it is often publicized that in this country we have a productivity at the rate of 3% per year. What it really means, assuming the percentage to be correct, is that our production or total output such as gross national product has been increasing at the rate indicated, but it does not measure the productivity or degree of efficiency of our labor force, capital resources, or any other factor of production. In fact, it may well be that productivity has actually declined at certain times, when the increase in the labor force, accumulated capital, and in other factors of production are considered.

Properly used, productivity is a ratio or relationship between output on the one hand and resources expended to produce that output on the other. Usually, an attempt is made to relate output to a factor of production deemed essentially or principally responsible for it. This has generally resulted in measuring productivity in terms of output per unit of direct labor such as a man-hour. It is obvious that when this is done, value added more nearly represents the contribution made by a unit of labor than do sales, products, or shipments.

At this juncture it may not be inappropriate to point out the fallacy in using solely man-hours of direct labor in computations of productivity, for it has led many to believe that all increases in productivity are attributable to this type of labor. The truth of the matter is that supervisory or indirect labor may have had as much or more to do with enhancing productivity as did direct labor. Moreover, increased productivity may frequently be caused far more by greater capital investment per unit of product or per unit of labor than by increased skill of or application by labor. For this reason, productivity may well take the form of a ratio of output to investment in capital goods or to machine hours of operation.

Again, management may be chiefly responsible for enhanced productivity. A case in point is the redesigning and rearrangement by management of a production line for a given product in the electrical field with the result that five men on a line could produce more than twice the physical volume formerly produced by seven men. Labor had nothing to do with this increase in productivity, as the type and skill of labor used on the lines remained unchanged.

Finally, land as a factor of productivity may be the factor that enhances productivity in a given situation. It is well known that a proper location of a business may have much to do with the amount of output produced, whether it be in terms of sales or value added.

IT IS, therefore, believed that much progress can be made in the measure-

It is, therefore, believed that much progress can be made in the measurement of productivity, if the output in terms of value added would be related to the various factors of production and not to labor alone. The difficulty of developing such measurements is no more of an excuse for not doing the job than the difficulty of complying with a law is an excuse for violating it. Besides, I am of the conviction that the job can be done and that it may be possible to determine just what factor of production is responsible for enhanced productivity and to what approximate degree.

A Prerequisite to Measurement of Overall Efficiency. Similarly, value added is not in itself a measurement of efficiency, but merely the proper output figure to be used in such a measurement. Especially in the measurement of overall efficiency, value added is the best numerator to be related to a denominator of total costs or any of its components and to net profits. It follows, therefore, that it would be erroneous to conclude that output viewed as value added would cause us to be concerned about ways and means of increasing it for its own sake, just as it would be erroneous to assume that input viewed in terms of costs would cause us to be concerned with ways and means of reducing it for its own sake and without due regard to the values obtained for such cost.

Emphasis on Productive Character of All Economic Activity. One of the most significant benefits to be derived from the use of value added as a measurement of output is the emphasis it gives to the productive character of whatever economic activity it measures. This approach to economic analysis inevitably leads to the conclusion that economic values are created by all segments of the economy and by all persons making up the labor force and, consequently, all of them are engaged in productive work.

The significance of this becomes apparent upon a brief review of a few highlights in the development of economic thought in this regard through the centuries. For example, as great a philosopher as Aristotle deemed money to be unproductive, on the ground that a piece of money cannot beget another piece of money. Such unsound thinking held sway in most parts of the world until the 14th century. During the periods of both Greek and Roman civilizations agriculture was considered the only productive economic activity. Even as late as the middle of the 18th century there arose a school of French economists, known as the Physiocrats, who believed and taught that agriculture was the only honorable industry and that land was the only real factor of production and possibly also the labor working upon it. Manufacturing and commerce were considered by them as unproductive and, in fact, all trade was deemed vulgar as was all mechanical labor. Strange as it may seem, there are still people amongst our governmental and political leaders today whose thinking harks back to the physiocratic school of economics, as when they bemoan the allegedly small share of the consumer's dollar received by the farmer compared with the much larger share retained in the form of "spread" by middlemen amongst whom are included manufacturers, processors, and transportation agencies. Even Adam Smith, the father of classical economics considered as productive only that part of labor which was bestowed on salable goods. He specifically regarded all menial servants, professional men, and public officials as unproductive. Some of his followers similarly referred to soldiers, servants, and other *unproductive* laborers.

It was not until the beginning of this century that economists generally accepted four factors of production, when to the familiar trinity of land, labor, and capital was added that of enterprise or of entrepreneurial management. In common parlance, however, and among business men generally we still speak of production as having to do with the change in form of products in the extractive and manufacturing industries and look down upon all other types of economic activity as possibly something to be tolerated but to be eliminated or reduced in importance at every opportunity.

IT IS high time that we all get in line with sound economic thinking and stop the silly argument as to who or what part of our labor force is or is not productive and whether one type of labor is engaged in production and another is not. If the classical concept of the terms production or productive were to be applied today, it would be found that only a little over two-fifths of our labor force would be engaged in production, while nearly three-fifths would be considered sterile or unproductive. This is silly on the very face of it. This means that we must stop treating persons engaged in certain economic activities like marketing or the services and professions as second-class citizens or no citizens at all in our economic life. The truth of the matter is that they are all creating values and are therefore part of the production process engaged in productive activity.

Conclusion. The value added concept as a measurement of output, in my judgment, presents a challenge to all persons concerned with creative thinking in the field of management. It calls for study and reflection, for a reappraisal of the traditional approach to the problem, and for some hard thinking along perhaps new and unconventional lines. It calls for a realistic treatment of our economic environment, for adventure in the realm of economic thought, and for a generous share of iconoclasticism. It is hoped that the necessary data will soon be made available to do all that in the scientific way to which leaders in management have become accustomed. ■

S.A.M.'s 2nd Annual
MATERIAL HANDLING Conference
June 13-14 - Hotel Statler - New York

Mr. Blough's association with U. S. Steel began during the investigation of the steel industry by the Temporary National Economic Committee in 1939-40, when he acted as an associate counsel for the Corporation. In 1942 he was appointed general solicitor in charge of all legal matters for the U. S. Steel Corporation of Delaware, and in 1951 he became Executive Vice President of Law, Secretary and a Director of the company and of three operating subsidiaries. Mr. Blough was elected Vice Chairman of the Board of Directors in 1952, and later the same year became a Director of U. S. Steel Corporation and a Member of its Finance Committee.

ROGER M. BLOUGH

Inflation As A Way Of Life

by Roger M. Blough
Chairman of the Board and Chief Executive Officer
U. S. Steel Corporation

THERE seems to be a growing opinion that the problems of a small business are different from the problems we face at U. S. Steel; but they're not. You can add a few zeros to the figures if you want to, but basically, your problems are the same as ours.

We live in a community too—a large one, the United States—and a number of smaller ones—your town and the town next to yours.

We want to be—and we hope we are—constructive and helpful in the national and local community problems which concern our affairs, in providing an adequate supply of steel, in devising the best policy we can on labor matters, in assessing the competitive pressures on prices, and in coping with the sorry consequences of what has become, for us, the most troublesome problem of all—the withering wind of "inflation."

And it is this problem of inflation that I want to discuss here. Inflation is no respecter of persons; it plays no favorites. It strikes with equally devastating effects the small business and the large business; the newspaper publisher and the steel maker.

Not long ago one of the largest and richest newspapers in this country was negotiating a new labor contract with the union. According to this newspaper's own statement, its circulation and its advertising had grown substantially. Its revenues had tripled in the past twenty years. But its major costs—for newsprint and payrolls—had quadrupled. So it had had to raise the price of the paper. It had boosted its local advertising rates eight times, its national advertising ten times. And in spite of all this its earnings had shrunk.

Now that story is not unique in the newspaper world. Nor does it differ in any essential respect from what has been happening to U. S. Steel. Since 1940 our production has increased substantially while our costs have mounted enormously. So we have had to raise our prices on a number of occasions. And in spite of the fact that last year we shipped 70 per cent more steel than in 1940 and our receipts from our customers have almost quadrupled, our profit rate has declined.

Like the Red Queen in Alice in Wonderland we have had to run faster and faster just to stay where we are!

So I sometimes wonder whether we, as a nation, have unconsciously adopted inflation as a way of life. We call it the problem of creeping inflation, or the wage-price spiral, and we recognize it as a serious problem. We all agree that something should be done about it. But we don't quite know who should do it.

Now, unfortunately, whenever we probe the causes of inflation on a nationwide scale, we find ourselves groping hopelessly in a maze of economic theory. Does inflation result only from profligate fiscal policies of a struggling government? Does it stem chiefly from a too-rapid rise in private debt? Can it possibly be caused by the insistent and successful demands by labor for a constant succession of "unearned" wage increases—wage increases too large to be met out of rising productivity? Economists can argue these questions endlessly, and I, for one, shall gladly leave them to their labors. But when we look at our own books and see what inflation is doing to our own businesses, there is nothing theoretical about it. The problem is perfectly clear.

Let me give you, for example, a few facts from the books of United States Steel. For a starter, let's look at our total costs per employee hour. These total costs include wages, materials, replacement, taxes—everything short of profits. Since 1940 they have risen at an average rate of 8.7 per cent per year. That means that every year for the past fifteen years our total costs per man hour have increased by an average of nearly 9 per cent above the level of the year before. And this increase—like the interest on a savings account in your bank—has been compounded annually.

But while these costs have been rising at the rate of nearly 9 per cent per year, our total production per man hour has

been going up at a rate of less than 3 per cent per year. A bit of simple arithmetic therefore reveals that the gap between our rapidly rising costs and our slowly-mounting output has been widening at a rate of about 6 per cent each year, since 1940.

So in order to bridge that gap—and in order to pay our bills—we have had to increase prices at an average rate of a little less than 5½ per cent annually, and even this was not quite enough to do the job. If our prices had been raised enough to compensate fully for these skyrocketing costs, during this period, the profit we make today on each dollar we get from our customers would be the same as it was in 1940. But it is not.

In 1940 that profit amounted to 9½ cents on the dollar. Last year—which was by far the best year we have ever had since 1940—the profit was only 9 cents. And if we carry the historical comparison back through the entire 54 years of U. S. Steel's existence we find that this 9 cent profit last year was not the second best, nor the third, nor the fourth—but merely the 26th best in our history.

So there is a quick look at what inflation has done, and is doing, to our business. It has not only wiped out the benefits of all of the technological progress made in our plants and our mills, but it has cut our profit margins far below the levels which prevailed in the earlier years of our corporate life.

BUT THAT, of course, is only a part of the story; for while inflation has been shrinking our profit margin on the one hand, it has been generating the need for a substantial increase in profits on the other. And to understand fully this upward inflationary pressure on our profit needs, you have only to look at the perplexing problem of depreciation.

Depreciation, of course, is a two-dollar word that frightens a lot of your readers; but all it really means is "How do we get our seed back?"

Long ago, our forefathers learned that the first thing they had to do to keep their farms running was to get back the seed for their next year's crop. And no matter how hungry they might get, they were out of business—and out of luck—if they ate up their seed corn.

And that's exactly how it is in any industrial enterprise today. Our seed, in the steel business, consists of our plants and furnaces and mills and machines, and all of the other things that we call capital equipment.

Now all of these machines and facilities wear out a little each day; in other words, they depreciate. And unless we can put aside enough money during the lifetime of these facilities to replace them when they are no longer usable we, too, are out of business, and out of luck.

So the Federal tax laws recognize, in theory at least, that the businessman, like the farmer, must be able to get his seed back. If we buy a machine that will last for 25 years, and if that machine costs us 25 million dollars, the tax laws say that the machine "depreciates" at the rate of a million dollars a year; and we are entitled to include this million dollars in the total cost of doing business in that year.

Thus, at the end of twenty-five years, when the machine wears out, we have theoretically recovered the twenty-five millions we paid for it. And theoretically that will pay for a new machine to replace the old one. But will it, really? Well, not by a long shot!

Actually the cost of the equipment we buy for our steel mills has been rising at the rate of almost 8 per cent each year during the past ten years; and if that rate of inflation were to continue over the entire life of the machine I have been talking about, it would cost us not 25 millions but more than 158 millions to replace it.

Let me give you a concrete example which I described to our stockholders earlier this year. Twenty-five years ago we built an open hearth plant at a cost of $10,000,000, and during those years we recovered, through this process of depreciation, the $10,000,000 we spent for it. But to replace that open hearth plant today would cost us $64,000,000. Now, where do we get the other $54 million?

The answer, of course, is that we must get it out of our so-called profits—our profits after taxes. But in order to get $54 million in profits after taxes we had to earn $112½ millions before taxes.

Now the Government says that this $112½ millions is profit, and they tax it as a profit. But it isn't a profit at all. It is our seed corn. It does not go to our stockholders, or to our workers, or to expanded production for our customers, or to make new jobs. It does not change a thing. It does not finance progress. It is merely the cost of standing still. It goes into the fight to keep from slipping back. It is what I call a "phantom profit" and it is equivalent to more than one-seventh of all the profits that we made last year.

That's a high price to pay for not going anywhere, especially when you remember that this beat-up open-hearth shop was only one among many facilities which we must replace in the course of a year.

AND HERE again, of course, the situation that I have described is not unique to the steel industry. In greater or lesser degree this problem of phantom profits has plagued every industry in America during these years of inflation. But its effects have been especially devastating in the steel industry and in certain other industries where the average life of our facilities is very long—twenty-five years or more—and where the difference between original cost and replacement cost is therefore much greater than it would be if our facilities had a shorter life of, say, ten years or so.

So the steel industry has been one of the principal victims of inflation since the beginning of World War II; and I must tell you frankly that we could never have met this serious depreciation problem and still kept our prices down at their present levels had it not been for two things:

First is the happy fact that the new facilities which we install are usually more productive than the old ones they replace, and so to some extent, at least, this automatic increase in productivity helps us to compensate for a part of our inflated replacement costs.

And second, is the fact that under wartime emergency legislation enacted by Congress, we—like many other companies in other industries—have been able to recover the cost of a part of some new facilities over a period of five years instead of the usual twenty-five. But the effect of this "Rapid Amortization," as it is called, is only temporary and will disappear almost completely in our case by the end of 1958. And when that happens our present profit levels would not enable us even to get our seed back—to replace our worn-out equipment—let alone to help finance the expansion of our steelmaking capacity in accordance with national needs.

So here, on the books, we find a clear and understandable case history of the irresistible upward pressure that inflation has exerted—and will continue to exert—on steel prices.

On the other hand, many people seem to believe that rising steel prices have contributed importantly to the march of

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inflation. They also seem to entertain the notion of a Procrustean bed of steel on which our prices are lengthened or shortened at the whim of the steelmakers. And if I do nothing else, I would like to dispel that notion once and for all!

As one of the principal victims of inflation, we in the steel industry have been deeply concerned about the causes of it, and we have tried to resist its advance at every step of the way. And I think our record proves it.

During World War II we were practically a captive industry in solitary confinement. We had a rising wage floor under our feet and a price ceiling over our heads and we were boxed in with walls of restrictions and controls. By 1945 our prices had risen only 3 per cent since 1940; yet wholesale prices, generally, had gone up 35 per cent and employment costs had risen 46 per cent.

When the war ended, and we were released from our straitjacket, we had to start to catch up, pricewise; but we knew that inflation had always abated at the end of every war in America's history, and we hoped and expected that it would do so again. But it didn't. Wages and prices kept spiralling upward on all sides of us, and by the spring of 1948 we began to be deeply concerned about it.

Our good and thoughtful friends who write the editorials for the nation's newspapers kept telling us that we were the ones who set the wage pattern for all industry, that when we raised the price of steel the price of everything else went up automatically. "As steel goes," they wrote, "so goes inflation." And we read it so often that we began to think there might be something to it. So we decided to do something about it, and in that particular year we had a unique opportunity we've never had again.

Under the terms of our contract with the union our workers could seek a wage increase, but they could not strike to obtain it. So when they demanded a raise to cover the rising cost of living we determined that, instead of granting their demands, we would reduce the price of steel by an average of $1.25 per ton. In doing this, however, we made it plain that if the cost of living kept going up—if prices and wages kept moving forward on a broad front elsewhere—we would have to rescind our price cut and grant a cost of living wage increase in fairness to our employees.

Now let me remind you that at this time steel prices were already lagging far behind other prices generally. From 1940 to May 1948 they had advanced only 40 per cent while the price index of all commodities had gone up 2½ times as much, food products 3½ times as much and farm products more than four times as much.

So what happened? Other unions demanded another big round of wage increases. Other companies, in other industries, granted them. Then they boosted their prices further in order to pay for them. And there we stood, like King Canute, commanding the tide to turn back and pretending not to notice how wet our feet were getting. So, eventually we had to rescind our price cut, increase the pay of our employees, and raise our prices enough to keep our head above the swelling tide we had tried to resist.

BUT FROM this we learned a few truths that some of our editorial friends still seem to overlook. One is that no one union, no one company, and no one industry can stop the march of inflation. We also learned that neither the steel industry, nor any other single industry, ever sets the wage pattern in America. Every new wage agreement signed in any major industry immediately becomes the floor upon which the next union pyramids its demands for a still higher wage. And we learned that rising steel prices do not cause inflation—they are the result of inflation.

Yet despite this discouraging lesson, we have continued steadfastly to resist the pressures of inflation to the limits of our ability. We have not raised our prices enough to cover the increase in our costs over these past fifteen years. And while the weight of inflation falls more heavily on the steel industry than on many others, it was only last year that the index of steel prices caught up with the front-running index of wholesale prices.

And this year, we have made another concerted effort to retard the rate of inflation in our industry. We knew of course—as you do—that from 75 to 80 per cent of the ultimate cost of the average manufactured article represents money that has been paid to or for labor. We also knew that our hourly employment costs at U. S. Steel had risen from 96 cents in 1940 to $3.03 in 1955—or at a rate of 8 per cent, compounded annually, each year since 1940. Meanwhile, actual productivity in our plants had increased at an average rate of only 2 per cent annually. And when I speak of productivity I am not re-

ferring to output per man hour, alone. I am also including, as we properly must, the cost of improved machines and materials.

So here was a gap of 6 per cent that had to be spanned each year by higher prices or by reduced profits. In other words, three-quarters of every wage increase we have voluntarily, or under pressure, granted over the past 15 years had been "unearned" in the sense that it could not be met out of increased productivity even if the entire benefit of that increased productivity went to our employees.

And again, we tried to do something about it. When the bargaining began last May the union demanded increased wages and benefits that would have boosted our hourly employment cost—not by the usual 8 per cent, but by nearly 25 per cent. We proposed a five-year, no strike, contract in which the union's major demands would be spread out over the entire five-year period. This would have represented an annual increase of about 4 per cent in our employment cost, instead of eight, and by narrowing substantially the gap between payroll costs and productivity, it would have minimized the necessity for further price increases during the life of the contract—provided, of course, a sharp rise in the cost of living did not boost our costs to their former level under the terms of the escalator clause which was included in the offer.

AND HERE we received heartening support from our editorial friends. Public opinion, as reflected in their writings, said: "Stand against inflation. We cannot bear another twist in the wage-price spiral. Be firm with the steelworkers. This has to end somewhere."

Well, we tried to oblige. Within the broad limits of our original offer we tried switching various benefits around in the hope of reaching an agreement with the union, but when the deadline arrived we were still miles apart. So the union called the strike and there we were.

Almost at once the mood of our kindly editorial advisers changed radically. "Settle this strike" they commanded. "It is a luxury the nation cannot afford." But out of several hundred editorials that I read during this period, I cannot recall one that suggested the terms on which the strike had a chance to be settled. With a few exceptions none of our friends dug down into the issues to determine whether the companies had offered too little, or the unions had demanded too much. With fine impartiality they divided the blame in equal portions, and called forth a plague on both our houses, and the pressure on both sides began to mount enormously.

"Settle it," they said. And settle it we did, not on the terms we had sought but on terms which, nevertheless, provide new ground for hope. Under this contract, our employment costs will rise by an average of 6 per cent each year during the three-year life of the contract; although the cost-of-living clause could, of course, boost the total in the end to a level above and beyond the 8 per cent increase we have had to meet in the past. But if the cost of living can be held in the next three years as well as it has been in the past four years, we shall have made some progress at least in abating the inflationary pressure on our prices. For we have not resigned ourselves to the prospect of inflation as a way of life.

So there we have it. And it is not all disheartening. Why, now and then we even get a word of appreciation for what someone thinks is a creditable job on the inflation front, or in the thankless task of labor negotiations. But we also get our share of criticism from those who still think that we somehow establish the wage pattern, and that because we are a large corporation we are willing to grant a higher wage than a smaller business can afford to pay.

Yet the fact remains that we have taken five nation-wide strikes in the past eleven years, primarily in an attempt to hold down the costs of production, and to minimize price rises. And in the end we have had to settle those strikes because, as you realize, our national welfare will not permit a steel strike to go on indefinitely.

It seems remotely possible to me, moreover, that in view of the great financial resources that the modern labor union commands in support of any strike that it calls, there may be some advantage in having a big business or two handy to help do the negotiating—and to help suffer the consequences.

And so we come back to the point I sought to make in the beginning. We both have the same problems, you and I. It doesn't matter whether we are a large or small company—whether we live in a big community or a little one. We face the same common enemy—inflation.

Now what can we do about it?

Well, there are several things that would help enormously to relieve this pressure on prices. For one thing it is time Congress should recognize the urgent need for a more realistic treatment of depreciation under the tax laws, so that business can treat as costs those things which are costs; while Government treats as profits those things which are profits. Realization of the fact that inflation has utterly destroyed the original intent and purpose of these depreciation provisions has already prompted France, England, and Canada to adopt forward-looking legislation in this field.

Pending Congressional action on this point, inflationary price pressures will be alleviated in many heavy industries by the further issuance of certificates of necessity under the Rapid Amortization law.

But most important of all, I think, is the task of bringing into every American home a true realization of the fact that what I have referred to here as "unearned" wage increases serve only to fan the flames of inflation and can benefit no one in the end.

We shall get out of our inflation difficulty only as each one of us understands the nature of the problem and the means of attacking it. For where inflation is a way of life, it's a short life and a none-too-merry one! ■

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The Span Of Control: A Reply

by Herbert A. Simon

Head, Industrial Engineering Dept.,
Graduate School of Industrial Adm.,
Carnegie Institute of Technology

HAVING come into the line of fire of Colonel Urwick's shotgun blasts (see November 1956 ADVANCED MANAGEMENT, *The Span of Control—Some Facts About The Fables* by Lt. Col. Lyndall F. Urwick) at Waino Suojanen, and the latter's skepticism about "span of control," I beg leave to reply briefly, not to *ad hominem* arguments about my "youthful exuberance," but to the substantive points he makes. In the matter of exuberance I am no match for Colonel Urwick, and I am afraid that my reply will have rather the aura of stodgy middle age. On the other hand, having recently reread carefully the offending pages of *Administrative Behavior* while preparing a new edition, I found nothing there that in the light of broader experience in organizations, I now want to retract.

I will accept Colonel Urwick's statement of the main issue. He asserts:

> "There is no contradiction except a purely verbal one between the principle of the span of control and the principle that the number of levels in an organization should be kept to as few as is practically possible. Both principles need to be applied in constructing a formal organization.

1. First, I am glad that he now recognizes as a principle "that the number of levels in an organization should be kept to as few as is practically possible." One of my complaints, in the chapter to which he refers, is that this particular principle had not been recognized in his and others' writings as a necessary qualification to the usual statements about span of control. Apparently, this criticism is now accepted by "authorities." (It is so well accepted that Colonel Urwick now even refers to it as "obvious common sense." If it is obvious—as it may well be—then he has been guilty of oversight in failing, for many years, to include it along with the other obvious principles of management.)

2. Second, the contradiction between this principle and limitation of span of control is also obvious. If you increase the span of control, you decrease the number of levels; if you decrease the span of control, you increase the number of levels. The arithmetic is as simple as Graicunas'. For an organization of 6,500 members, an average span of control of 3 will call for 9 levels ($3^8 = 6{,}561$, and one extra level for the top executive); an average span of control of 9 will call for 5 levels ($9^4 = 6{,}561$).

This means that the price of reducing the span of control is always some increase in number of levels; the price of reducing the number of levels is some increase in span of control. A practical executive who has to settle the issue in concrete terms is not much comforted to know that he should behave like an Aristotelian man of moderation—neither too much nor too little. He wants to know how much is too much, and the contradictory principles, or proverbs, don't tell him that. Since Colonel Urwick prides himself on a practical, rather than a "scientistic" attitude towards these questions, I would suppose that this difficulty would trouble him.

3. My substantive point in the offending chapter 2 was essentially the one just made — the classical "principles" of administration, like proverbs, come in mutually contradictory pairs. Hence, they are more useful in rationalizing action already taken than in choosing action for the future.

4. I find it difficult to understand the sharp line that Colonel Urwick has always drawn between "formal" and "informal" organization. They are both part of the same fabric, and "formal" organization is no less a psychological phenomenon — no less an aspect of observable human behavior—than the "informal." Correspondingly the "formal" is not understood until the psychological mechanisms are understood that maintain it. I am not aware that I, or others who have analysed organization in behavioral terms, have ever argued that formal organization is unimportant. Whether organization *charts* are important, is another issue, and one that can't be discussed at length here.

5. The deeper problem with Colonel Urwick's position is methodological. In the last analysis, he tests the truth of propositions against his "experience," his "common sense," and "authorities." These are unsatisfactory sources of evidence for public science. An "authority" apparently becomes such by receiving Colonel Urwick's blessing; and the blessing is bestowed if what the "authority" says agrees with Colonel Urwick's common sense. But Colonel Urwick's common sense is sometimes my nonsense, and vice versa. The way in which "authoritative" theories—e.g., the phlogiston theory of combustion—cease to be authoritative theories and become mythology is by being confronted with evidence.

Don't misunderstand me. Practical men have to act—myself included, in my administrative role—and insofar as science doesn't tell us how to act, we act on experience and frequently are right (or at least don't meet disaster). But I understand Colonel Urwick's job and mine not to be simply one of second-guessing experience, or even transmitting unchanged the wisdom of the ages. I think a large part of our job is to improve experience by supplementing it with science. For this purpose, even if we are concerned with business organizations, laboratory studies and *systematic* field research are likely to be more valuable sources of knowledge than old wives' tales and illustrative anecdotes. Experience tells us this is so in all other fields of knowledge.

I suppose that what I regret most is that Colonel Urwick feels he should devote his time and energies to defending a past that we all accept as invaluable but not final. I should like to remind him of his own eloquent words in his review of *Administrative Behavior*:

> *"It is more than four centuries since men began to realize that apprenticeship to a barber was an inadequate preparation for the practice of surgery—much longer since the possibility of an inductive approach to medical problems was first envisaged. Yet, even today, despite the accumulated discoveries and the refinements of skill of modern medicine, the undiscovered country is still immense. What even the greatest of practitioners do not know is much more curious than what they do know. It is little more than half a century since similar processes of thought were first applied to the infinitely more complex field of management and administration, a field in which scientific certainty even as to the cells of the organism, the individual member of any system of cooperation, is unthinkable, until psychology, psychopathology, and similar studies have made immense advances. It is idle to imagine that we are anywhere but at the earliest stages of a*

(*Continued on page* 29)

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After receiving a B.S. in Mechanical Engineering from the University of Florida, Mr. Bachlotte joined E. I. du Pont de Nemours & Company in 1929. He has continued his career with that company since, and is presently Methods and Standards Supervisor of the Old Hickory, Tennessee du Pont plant. He is a member of the Society for Advancement of Management, and has recently been nominated a S.A.M. National Officer.

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Mr. MacWilliams attended the University of Washington in Seattle, where he received a B.S. and an M.S. in Electrical Engineering, and a B.S. in Industrial Engineering. He also completed the Allis Chalmers Manufacturing Company's Graduate Training Course in Engineering. His first job was Plant Engineer for the Allis Chalmers Company in West Allis, Wisconsin. In 1951 he went to General Alloys Company in Boston as Project Engineer, for a period of four years. In 1954 he joined Ernst & Ernst, Boston, as Supervisor of Engineering.

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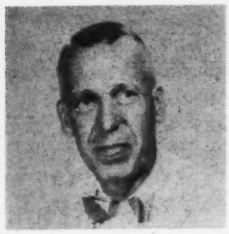
HUGH A. BOGLE

A.S.M.E. GENERAL CHAIRMAN

Mr. Bogle received a B.S. from the University of Tennessee in 1929, and joined the E. I. du Pont de Nemours & Company that same year. He served in research and production until 1944 when he began doing consulting work in the Central Engineering Department. He is currently Manager of the du Pont Industrial Engineering Section.

VICTOR A. GROVE

A.S.M.E. MEMBER



Mr. Grove has served the DeLaval Steam Turbine Company since 1952 as Chief Industrial Engineer. He held the same position with Universal Winding Company from 1949-52, and prior to that he was Associate Engineer with Roth & Strong, and Design Engineer for the Chicago Bridge and Iron Company. He is a graduate of Architectural Engineering.

GERALD C. MOORE

A.S.M.E. MEMBER

During 22 years with Westinghouse Electric Corporation Mr Moore has served that company in Time and Motion Study and Industrial Relations Activities, as Industrial Relations Manager in Kentucky, Michigan and Pennsylvania plants, and as Director, Headquarters Plant Industrial Engineering in Pittsburgh. He has served as Management Member of the War Manpower Commission in Kentucky, Management Consultant to the War Labor Board in Detroit and Member of the Industrial Engineering Council of the National Industrial Conference Board. He is Vice President of S.A.M. Pittsburgh Chapter and Vice President of M.T.M. Association for Standards and Research.

Annual Engineering CONFERENCE

Meets Competition"

ations Research . . . Work Measurement . . . Wage Incentives . . . Quality Control . . . Material Handling . . . Integrated Data Processing . . . Cost Reduction . . . Management of Industrial Engineering.

We are particularly fortunate in having as our dinner speaker on Thursday evening, Mr. William L. Batt, Past President of S.K.F. Industries, and Past President of A.S.M.E. As Chief of the E.C.A. Mission to Great Britain, 1950-1952, and Minister of Economics and Finance in the U. S. Delegation to N.A.T.O., in 1953, Mr. Batt is eminently qualified to speak on the subject "Good Management—A Requirement for Peace". It is most fitting that our dinner speaker will be introduced by S.A.M. National President John B. Joynt. Mr. Joynt will also present the S.A.M. Annual Awards.

Supplementing the technical and inspirational content of the Conference, will be its social aspects. In addition to the Cocktail Party, a Ladies' Program has been planned under the direction of Mrs. Bruno Moski. The Program will include two special luncheons, a fashion show, and a tour of the United Nations.

The Annual Management Engineering Conference has traditionally provided an occasion for the reunion of management executives and engineers from the entire country. Judging from the early registrations already received, the 1957 Conference should establish a 12-year attendance record.

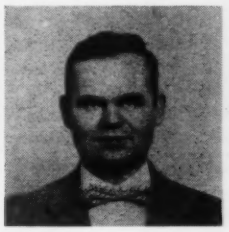
With the unbeatable combination of a sound technical program, inspirational addresses, sparkling social events, and a maximum attendance, the 12th Annual Management Engineering Conference promises to be an outstanding success!

HARRY M. KAISER

S.A.M. General Chairman

WALLACE J. RICHARDSON

A.S.M.E. MEMBER



Professor Richardson graduated from the U. S. Naval Academy in 1941 with a B.S. E.E., and in 1948 he received an M.S.I.E. from Purdue University. He was Assistant Professor of Industrial Engineering at Purdue from 1949-52, when he went to Lehigh University as Associate Professor of Industrial Engineering. He has been Consultant to such firms as Union Carbide and Carbon, Haynes Stellite, Bethlehem Steel, du Pont, C. H. Masland and Sons, and others. He is co-author of the book, **Work Sampling** to be published by McGraw-Hill this year.

FRED GROPPER

A.S.M.E. MEMBER

Mr. Gropper's first job in industry, after graduating Newark College of Engineering with a B.S. and M.E., and doing graduate work in M.E. at Brooklyn Polytech, was with Western Electric Company as manufacturing engineer. In 1941 he went to du Pont as Standards Engineer, then successively held posts as Standards Supervisor in the Pigments Department, Methods and Standards Supervisor in Electrochemicals Department, Maintenance Engineer, Mechanical Development Supervisor and Construction Engineer. He is presently Group Supervisor of Methods and Measurement in Industrial Engineering of the Engineering Department. Mr. Gropper has also taught Industrial Engineering at the University of Delaware and Buffalo University, in evening courses. He is a member of S.A.M. and A.S.M.E.

Rolf Nordling has been active for many years in the field of Management and Employee Relations. He has been instrumental in helping to create and direct national and international committees and conferences in these fields, and his reports in the areas have been widely read in many languages. He heads his own business, Solitaire S.A., where he strives to improve the standards he has worked so hard to establish.

Social Responsibilities Of Today's Industrial Leader

By Rolf Nordling

President and
General Director
Solitaire S.A.

Translated from the French by H. Ozbekkan

THOSE who are charged with the direction of an enterprise (and I mean the chief officer, as well as all those who consciously share his functions) feel the hard stringencies of the responsibilities that have them in their grip, that haunt their days and nights and oblige them to follow the kind of life which corresponds neither to their tastes nor to their temperaments.

And these responsibilities weigh even more heavily upon them in our countries where the immense majority of their fellow citizens don't even know of their existence. Most people notice only the privileges and, because they are human they envy them but ignore the servitude and especially the fundamental necessity of rendering services by those who, either because of their talents or through circumstances, have been put at the head of this organism, a new born phenomenon in human history: the industrial and commercial enterprise of the twentieth century.

From now on this enterprise is, in fact, the essential element upon which the equilibrium of the whole of our society rests, independently from the political regime that serves it as a framework. Be this regime liberal or planned (dirigiste), democratic or totalitarian, the responsibility of those who direct the enterprise remains the same in the forward march of our civilization.

When we talk of the "social responsibility" of the chief officer of an enterprise and of those among his colleagues sharing his responsibilities, and of the vital necessity for them always to do better at their task, I mean the expression "social responsibility" in its largest meaning; namely, as responsibility toward the whole of the nation.

I have often asked myself why these responsibilities were so ill-defined and so little understood. I believe that there are two principal reasons for this:

1) Historically, these responsibilities are of very recent origin and for the last one hundred years their expansion follows an exponential curve of which the history of civilization contains no earlier example.

2) It is the circumstances of technical progress and of organization which have progressively *imposed* these increasing responsibilities upon men of action. These have discharged them sometimes well and sometimes badly. They have not sought them out voluntarily in relation to a civic morality or of a doctrine, as a magistrate, a career officer or a civil functionary would have done.

Having to create or to maintain the continued existence of the enterprise, their philosophy had naturally to be the "primum vivere" of the man of action.

When we study the history of the doctrines which establish the aims attributed to other segments of the nation's structure—doctrines whence the education they receive is derived—we see that the importance of these functions has manifested itself and been recognized for as long as we are able to go back in the past of these social segments. This is true of the functions which define the Army, the Church, the Judiciary, and maybe also, although with less clarity, Education and Public Function.

Little by little, doctrines are born that define the aims toward which officers, dignitaries of the Church, magistrates, educational leaders, and high civil servants, must go.

I do not have the naiveté to pretend that such doctrines are always perfectly defined or that they were well taught and still less that they are always followed. Nevertheless, they possess the merit of existing and it is probable that without them societies would fall into anarchy for what distinguishes an organized society from one which is anarchical is the existence of a structural framework and of a doctrine defining the objectives of the action of all those, who from the viewpoint of the nation, have to discharge a specialized function.

Yet, if we study the problem of the industrial framework, we immediately see that it is only a little while that the functions of the chief officer of the enter-

This talk of Mr. Nordling's appeared in "CNOF" (August-Sept. 1956). It was delivered at the 10th International Congress of the Social Problems Pertaining to the Organization of Work.

prise and of his colleagues have existed and that it is not more than one hundred years that these functions have begun to exercise an important influence upon the economic and social development of Western nations. Finally, it must be said that it is only since the beginning of this century that this influence has grown so fast as to be unmeasurable. This is a fact which we often forget.

In my youth they used to tell high school students that Colbert had, following a national objective, created a great industry in France: the Mirror Manufactury of Saint-Gobain. This led us to believe that already under Louis XVI there existed what we today call the "industrial enterprise." But, thanks to the kindness of the Saint-Gobain Company, I was permitted to look into documents which describe the birth of that concern. In truth, I was able to determine that with the aim to limit the expenses of that prodigal monarch, the prudent and economy-minded Colbert had helped a few gentlemen to get hold of the manufacturing secrets detained in this field, until then, by the rich citizens of the Republic of Venice. These founders of our great industry had succeeded in smuggling in, secretly, seven specialized workers. The ambassador of Venice, worried by his realization that one of the secrets of the wealth of his small country was thus being uncovered, succeeded, upon orders from his government, in having three of these workers poisoned; the others, terrorized by the sudden death of their fellows, fled back to their native city. Meanwhile, however, a few French workers had succeeded in acquiring their science and some mirrors had begun to be produced.

Fifty years later, toward 1750, the plants of Saint-Gobain had a complement of 200 workers. This business, which was more or less on the level of a craft, was then considered as a great industry. They talked about it as the example of the great national industry which, for those who have not studied economic history closely, creates the illusion that already then it was playing an appreciable role in the social life of the country.

Well, this is completely false. In truth, until the beginning of the 19th century the standard of living in the country depended upon agriculture, upon the quality of the harvest and, to a lesser degree, upon the administrative qualities of the great landholding classes (the nobility and the clergy), upon the way in which the police and the judiciary kept public order, upon the more or less judicious use which the head of the State and those immediately around him made of collected taxes, upon the moral influence of the Church, upon results of wars in the measure in which the State won them—or avoided them.

The industrial enterprise and, consequently, the quality of its management, did play but an insignificant role in the economic and social life of the country. The problem of the management's education and development could not be considered as a national problem.

Permit me to remind you of a few statistical figures concerning the repartition of professions in the United States from 1820 to our days.

	Forests Agriculture Fishing	Industry	Commerce Administration
1820	72.8%	(12 %	15.2%)
		27.2%	
1900	37.4%	29 %	33.6%
1940	19.3%	31.1%	49.6%
1960	16.4%	26.5%	51.1%
		83.6%	

You will see from the above that the percentage of people working in agriculture, the exploitation of forests, or in the fishing industry falls from 72.8% to 16.4% in our days.

The percentage of those working in industry, commerce and administration has, on the other hand, gone up from 27.2% to 83.6%. Commerce and administration are preponderant but what is commerce if not a simple extension of industry? As to administrative functions, these cannot, as is the case with commerce, develop and support those who exercise them otherwise than through the increase in production of industry or of an industrialized agriculture.

The standard of life of the country, therefore, depends more and more on the way industry is managed.

I have not found for France statistical data of comparable rigor. But it appears that at the beginning of the eighteenth century, 80% of the active population was working in agriculture, whereas in 1866 only half of the population was thus employed and in 1954 approximately one third. At the beginning of the eighteenth century, industry and commerce were employing probably 10% of the active population, 20% in 1866 and 50% in 1954.

This movement which tends to make of the industrial and commercial enterprise the vital center of the nation, which, consequently, increasingly underlines the importance of the quality of its leaders, has not attained its final stage. Nothing permits us to think that it has. On the contrary, this movement seems very narrowly geared to technical progress. Although some among you may already know it, I cannot refrain from reading the following pages of Jean Predseil:

"There is an initial idea that ought not to be neglected if one is to understand the present situation and its consequences: it is that the Industrial Revolution has occurred very recently and that its consequences are so much the stronger as we are dealing with a movement which is in the vigor of its youth and not in its decline.

"In order fully to realize this, it is necessary to establish certain bench marks and measure economic history against the only standard which is possible: human history. But these figures which express the antiquity of Man do not speak to our imagination: can one obtain a mental image of what 2000 years or 30,000 years mean? No. Therefore, we must seek an image which is more expressive.

"Let us suppose that one can reduce to a year of twelve months the total

CHAPTER MEMBERSHIP STANDINGS

as of March 1, 1957

New York	400	Bridgeport	75
Philadelphia	370	Columbus	75
New Jersey	334	Georgia	74
Cincinnati	307	Reading	66
Lancaster	293	Puerto Rico	66
Chicago	265	Hartford	61
Pittsburgh	252	Tr. Del. Valley	61
Cleveland	241	Alabama	57
Washington	206	Clearing	57
Detroit	199	Central Penn.	56
Boston	196	Richmond	56
Milwaukee	184	Charlotte	53
San Francisco	169	Twin City	52
Los Angeles	145	Calumet	51
Dallas	144	London, Ont.	51
Indianapolis	139	Cent. New York	48
W. N. Carolina	128	Western Mass.	47
Hudson Valley	120	Northland	46
Raritan Valley	120	Orange Coast	46
Montreal	119	Fox Valley	43
Worcester	113	Madison	41
Kansas City	112	Lehigh Valley	40
Long Island	110	Westchester	40
Baltimore	108	Nashville	36
Binghamton	107	No. Mississippi	35
New Haven	106	Athens	33
Sacramento	105	N. E. Penn.	32
Greensboro	102	New Orleans	31
Wilmington	96	St. Louis	30
Providence	88	Portland	26
Dayton	87	Louisville	14
Knoxville	85	Stamford	11
Greenville	79	Non-Resident	97
N. Alabama	77	Non-Chapter	89

duration of the known period of the history of Man: 30,000 *years.*

"In these twelve months which represent the life of our ancestors from the Age of Stone until our days, it is toward the 18*th of October that the Iron Age starts. It is the* 8*th of December that the Christian era begins.*

"We are on the 29*th of December when Louis XVI ascends the throne of France. What mechanical power does Mankind possess at that epoch? Exactly the same as that which the caveman had possessed plus whatever he was able to derive from draft animals after the invention of the yoke.*

"By the 30*th of December, in the first* 18 *minutes of the morning, Watt invents the steam engine.*

"The 30*th of December at* 4:00 *p.m. the first railway begins to operate between Roanne and Saint-Etienne.*

"And thus we reach the last day of the year.

"The 31*st of December:*

"At 5:31 *a.m. Edison invents the first incandescent lamp.*

"At 2:12 *p.m. Bleriot crosses the Channel.*

"At 4:14 *p.m. World War I begins.*

"At this date Western men dispose of 8/10 *of a horsepower: this is a notable and brutal progress because:*

"During the whole year they have lived with only 1/10 *of a horsepower,*

"In one day they have multiplied it by 8,

"But five hours suffice to bring this figure to 80.

"It is a fact that on the 31*st of December at the eleventh stroke of midnight Frenchmen dispose of* 8 *horsepower each.*

"And at the same time, the Americans have 60 *each while the inhabitants of New York* 270 *each.*

"Last remark: At precisely midnight it is the explosion of the atomic bomb upon Hiroshima, and the Atomic Era begins and, I would add, the Electronic Era, as well."

AS YOU see, we are not at the twilight of our efforts. We are, in truth, at the dawn of our responsibilities.

But the statistics are not sufficient to make us understand the historical perspective of these responsibilities. It is evidently true that only since the nineteenth century, and more specifically, since the twentieth century, has the commercial and industrial enterprise begun to infuse life to the whole of the country and because of this, although they were unprepared and often unwilling, the leaders of these enterprises have found themselves invested with responsibilities equivalent and often surpassing those which devolve upon leaders belonging to other segments of the nation.

But this transfer of responsibilities is not only of a quantitative order. It is equally due to a moral evolution strongly tied to the vertiginous increase in production. The fact of the matter is, as the possibility for each to acquire all the goods of this world was becoming something very similar to reality, a materialistic philosophy had logically to be developed at the same time.

MAN NEVER desires *strongly* anything except that which he believes to be immediately available, either to him or to his direct descendants. That is why, parallel to the acceleration of technical progress, an immense desire for greater material well-being has violently got hold of the whole of humanity—of those who truly were suffering from hunger, cold, the sicknesses of malnutrition and of ignorances, as well as of those who already enjoyed a minimum necessary to their physical and intellectual flowering. All these people began to desire avidly the superfluous which, tomorrow, will be within their grasp.

I believe it would be proof of an unrealistic attitude and of a dangerous anachronism to condemn totally this tidal wave of materialism with the idea of erecting against it a spiritualist doctrine. I am strengthened in this belief by the recognition that many of those who have derived from this movement—born from technical revolution —the elements of political, economic and moral doctrines are often disinterested men who think much more about the material well-being of their fellows than of their own.

Evidently, I am not one of those who believe that the happiness of humanity can be measured in terms of the number of washing machines which are used or of other similar appliances, but I, nevertheless, do believe that the production and distribution of material goods has become a problem of a moral order which touches us very directly, which will go on touching us for as long a time as the majority of people are not in a situation to benefit from optimum biological conditions which permit them the complete fulfillment of their physical, intellectual and moral personalities.

One of the tragedies of our time is that we, leaders and members of the higher echelons of enterprises, who hold in our hands the command levers of the only organisms capable of creating these goods that are so necessary or so violently desired, we who give to these new organisms of our time our passion and our life, we are often considered as useless parasites. And the height of injustice is that the enterprise is often judged in a way contrary to all good sense as we can see in most democratic countries, those multiple laws issued from an ill-informed opinion, penalizing the enterprise in direct function to its growth; in direct function to its success and consequently to its capacity to produce more cheaply and in greater numbers.

Our fathers and ourselves are certainly greatly guilty for the existence of this ignorance, for two reasons: 1) as I have already said, because being men of action we never had either the propensity or the time to search for and formulate doctrines; 2) because our profession was, 150 years ago, a simple means of livelihood just like any other profession. It is only during the course of the present century that this profession has become an essential element of the framework of our society in all the so-called civilized countries. And that is also why only a short while back was born on the entire earth this passionate search for a doctrine of the enterprise, of the techniques of management susceptible to being taught to the present and future leaders of industry.

It is undoubtedly vain to seek a single end or aim for the enterprise. Certain it is that the industrial and commercial enterprise, as was the case with the craft-directed enterprise or the earlier agricultural one, have as their aim the creation of goods and services. It is not, therefore, this which in itself characterizes the modern industrial enterprise. What characterizes it is rather, the increasingly complex laws governing its inner life and development.

When we speak of the life of the enterprise we do not mean to refer to a simple image. Effectively from the industrial enterprise is born a new collective and living organism.

What are the fundamental characteristics of this organism; the faculty it possesses to grow indefinitely, the length of its existence which is independent from the life span of its proprietors, the necessity with which it is confronted always to modify itself in order to effect its adaptation to progress, the necessity for its leader to guide all the will-powers and efforts inherent to

it toward a common goal and to make of it, whether he wishes it or not, an educational institution (enterprise).

As Peter Drucker, the economist, says: "The enterprise by definition must be capable of producing more and better than the sum of all the resources which it commands. It must be a whole bigger than the sum of its parts and have an output superior to the sum of everything it receives under the form of input."

The enterprise, therefore, cannot be a mere mechanical assemblage of resources. To create an enterprise with resources it is not possible to gather the manpower, in a logical way, and to throw in capital as the economists of the nineteenth century sincerely believed.

The role of management is to operate a transmutation of resources. An inanimate resource such as capital cannot possibly cause such a transformation.

Therefore, what could the search for a unique finality, a unique end for the enterprise, signify? Must the enterprise make maximum profits? Maybe, but where is the limit? Is it when buyers begin resisting? Is it when the work content of the product is insufficient? Is it when amortization becomes insufficient in order to assure a renewing of the plant? Is it when the role attributed to research and studies becomes insufficient and therefore cannot permit the enterprise to renew itself?

SHOULD the aim be to give the personnel of the enterprise a maximum role? Assuredly, but how to determine an equitable proportion? Is it when this role is so important that it compromises the smooth operation of one or the other of the functions of the enterprise?

Should the end be the aim to produce always better and always cheaper? Certainly. But only where the attempt to reach this objective imperils neither the finances of the enterprise nor the possibilities of satisfying the demands of the personnel.

In truth, there is no significance in trying to attribute in isolated fashion one or the other of these aims to the enterprise. The truth is that the enterprise having become a living organism —on which depend the consumer, the personnel, the finances of the state, private capital in the liberal democracies and state capital in socialist economies — the aim to pursue is to secure the life itself and the continuity of the enterprise and of its development which have become so indispensable to our society. The role of leaders is, therefore, to secure this life, this continuity, this development, in a social equilibrium which is as near as possible to harmony.

It is almost useless to add how much this role becomes increasingly difficult as a result of the constant growth of the enterprise, as a result of the increasing technical complexity which forces the coordination of the work of multiplying numbers of specialists and, finally and above all, as the result of the acceleration of progress which renders more and more necessary the vision farther and farther into a future which is more and more distant and less and less stable.

The education that the leaders must receive in order to fulfill their social role—namely, the harmonious existence of the enterprise—is, therefore, a conglomeration of knowledge of an extremely complex nature: finances and accounting, production and simplification of work, studies of sales and of marketing, methods of personnel selection, methods of compensation and promotion, methods of information, of psychological motivation, whether individual or collective, and of the organization of individual and collective work; methods of commanding and exteriorizing the leaders' own personality. All this oriented toward the following multiple and splendid aim: the harmonious continued existence of the enterprise in a world in which the hatred of class and if possible of nations and races must slowly disappear.

But this education destined for men whose responsibility in the nation has increased so considerably can neither be prepared nor given by those alone who are presently the leaders of the economy. In this way, that education would risk becoming a training for a class or a caste and prepare tomorrows which are absolutely contrary to the very things such an education is seeking to create.

Such an education must be prepared in ultimate cooperation among all those who depend on the enterprise and all those on whom the enterprise depends: I mean the unions and the state. The heads of the unions possess, in fact, a knowledge of the psychology and of the outlook of those whom they represent which is so essential to the teaching of a doctrine of the enterprise that any education which discounts it would obviously be condemned to sterility. This is the reason why we often see in American, Swedish and other universities union leaders of renown give lectures and courses in workers psychology, history of unionism, mechanism of collective bargaining, significance given by the staff to the committees representing the management (enterprise). Such courses are directed toward the education of management.

NOTHING would be a comparable incentive for management in their efforts to eliminate or remedy the fearful duality of viewpoints which presently exists within the enterprise than to know the long-range impacts and the reasons of its existence.

This is the reason why we are happy that today many union people have come to discuss the problem which preoccupies us.

However, the leaders of enterprises and the leaders of unions cannot alone prepare and deliver this education which is new, which is destined better to assure the new responsibilities of the top and middle management.

On the other hand, as soon as there is a possibility for the function of an organism to become the subject matter of a science, the actors are less qualified than the thinkers for the analysis of this organism, for the search of laws which are the condition of its survival, for the search of pedagogical methods which are most appropriate to teach them. This is the reason why the teaching of the management of enterprises depends increasingly upon university professors, especially for the studies of psychology, statistics, economics. These subjects are acquiring within the realm of these matters (management studies) an increasingly greater importance.

This is the reason why we have appealed today to the eminent members of university faculties of different nations so that they can bring to us their part of new knowledge in this new domain.

Finally, a three-fold problem of liaison exists between the enterprise and Public Function. It is indispensable that public servants of all ranks and particularly the high placed ones, understand the immense responsibility which has developed upon the leaders of the enterprise. The teaching given to these leaders must, therefore, be also given to those who work in civil administration. It is indispensable on the other hand that the leaders of an enterprise must understand better the heavy load which is carried by those who work for the State.

It is infinitely propitious, in this connection, that the newly created educational opportunities should receive candidates from both these groups.

1957-58 S.A.M. National Officer Nominees

THE S.A.M. 1957-58 Nominations Committee was elected at the National Board of Directors meeting, held October 27, 1956. All Chapters were requested to submit their nominations for National Officers. Based upon recommendations made by the chapters to the Committee, all names submitted were carefully considered. The Nominations Committee was gratified that a total of 95 nominations for the new year's National Officers were made by the Chapters.

The Committee met again in February 1957 and reported to the National Executive Committee on February 16th. They have unanimously nominated the officers listed below for the 1957-58 term. These officers will be voted upon at the April 27th National Directors Meeting.

Chairman of the Board—John B. Joynt
President—Homer E. Lunken
1st Vice President—Phil Carroll
2nd Vice President—Maurice R. Bachlotte
Secretary—Hugo Druehl
Treasurer—Bruno A. Moski

Chairman of the Board

JOHN B. JOYNT

Asheville Chapter

Mr. Joynt has been an active member of S.A.M. since 1946, has moved up from Treasurer through the Presidency of the National Officer slate. Mr. Joynt is Manager of Administrative Engineering at American Enka Corporation, a company he has served for some years. He has also held positions with manufacturing, banking and transportation companies.

2nd Vice President

MAURICE R. BACHLOTTE

Nashville Chapter

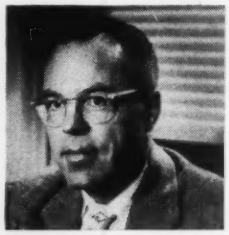
Mr. Bachlotte went with the E. I. du Pont de Nemours & Company in 1929, after receiving a B.S. in Mechanical Engineering from the University of Florida. He has continued with that company and is currently Methods and Standards Supervisor of the du Pont Old Hickory, Tennessee, plant. Mr. Bachlotte is Vice President of the S.A.M. Southeastern Region.

President

HOMER E. LUNKEN

Cincinnati Chapter

Mr. Lunken has been one of the most active members of the S.A.M. Cincinnati Chapter, since 1944. He has held various offices with that chapter, has also been president of the S.A.M. Central Region. He is Vice President and a Director of the Lunkenheimer Company of Cincinnati.



Secretary

HUGO W. DRUEHL

Los Angeles Chapter

Mr. Druehl is President of Arrowhead and Puritas Waters, Inc., Los Angeles. From 1934-42 he served with the Farm Credit Administration in Washington, and with the Army from 1942-46. He went to the Pacific Public Service Company, San Francisco, in 1946. Mr. Druehl has an A. B. from Stanford University and an M.B.A. from Harvard.

1st Vice President

PHIL CARROLL

N. New Jersey Chapter

After receiving his electrical engineering degree from the University of Michigan, Phil Carroll served in the Signal Corps during World War I, then entered Westinghouse as a student engineer, working in timestudy in three of that company's plants. He is a member of the National Society of Professional Engineers, a Life Fellow of A.S.M.E., and has served S.A.M. in many offices, as President of the Northern New Jersey Chapter, National Secretary, National Treasurer, and Vice President in charge of Membership. He is author of several prominent books on **Time Study** and **Cost Control.**

Treasurer

BRUNO A. MOSKI

Philadelphia Chapter

Mr. Moski left Yale in 1957 with a degree in Industrial Engineering. Since then he has acquired extensive experience in the field of Industrial Engineering and Plant Engineering with Western Electric, Sperry Gyroscope, Sargent, Colt Fire Arms, and American Paper Goods. He has been with Yale & Towne since 1950, is now Director of Industrial Engineering in that company's Yale Material Handling Division. He is Vice President of S.A.M.'s Middle Atlantic Region.

The third common problem is the following: not only do the responsibilities of those who lead the economy increase but the *number* of those who must possess the necessary knowledge increases equally.

GIVEN those natural qualities of intelligence and character that are needed in order to occupy efficiently the higher positions in the enterprise, it is indispensable that the recruiting of those who will get to fill these positions must be made, always, from all the strata of the nation. It is, therefore, necessary that all the artisans, all the foremen, all the engineers, all those who come from the ranks and those who, possessing the temperament of leaders do not yet have the necessary education and knowledge should find the opportunity and the means of acquiring them.

In order to attain an end so vast, I do not believe that private effort can be sufficient. That is the reason why mixed educational bodies helped by the State have seen the daylight and are developing rapidly and this is an indispensable element in the harmonious evolution of our economy.

Certainly, pessimists sometimes see the leader of the enterprise as belonging to a class (category of individuals) which must soon disappear. Those people have misunderstood history. Great captains disappear when there is no more army, no more artillery; the nobility disappear when it has no more lands to defend; the clergy of the Courts disappear when it forgets that its mission is to save souls; parliaments disappear when the necessity of action replaces the satisfaction which it derives in hearing words.

As for ourselves, leaders and middle managements of enterprises, on the contrary, our mission increases and affirms itself with every passing day. Instead of decreasing it becomes constantly heavier. It is our duty, therefore, to face it courageously by preparing those who have that immense privilege of being the brains and the heart of a living being greater than themselves, more intelligent than themselves, more eternal than themselves: the enterprise which they direct—producer of goods and services. ■

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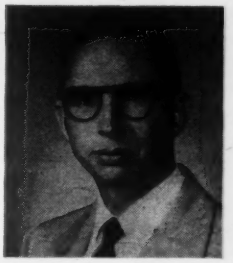
SMALL BUSINESS
May 23-24, 1957
MATERIAL HANDLING
June 13-14, 1957

Mr. Murdick has worked in Engineering and Engineering Administration since his separation from the Armed Services in 1946, and he is currently employed as a Nuclear Engineer, and is a registered Professional Engineer in the state of New York. In 1941 he received an A.B., Magna Cum Laude from Duke University; he also attended the University of Maryland. He is a member of the Society for Advancement of Management.



ROBERT G. MURDICK

An Engineer's Outline Of A Manpower Development Program

by Robert G. Murdick

Nuclear Engineer
Philadelphia, Pa.

THE lack of trained men to fill both specialist and executive positions in industry is evident from the recent attention given this problem by business, technical, and financial publications. A planned program for manpower development within each company will help to alleviate the shortage of such key men.

Recognition of three fundamental ideas is essential to the operation of a manpower development program. First, the initiative and sustained effort must stem from the individual. This means the individual should seek means to improve his effectiveness and should be willing to devote his own time and resources over an extended period to achieve his objectives. Secondly, the company should make available to those who seek it, the experience, knowledge, and assistance of sufficient manpower development specialists. Finally, since there are considerably more individual contributors than supervisors, the response by the former will determine the success of the program.

The manpower development program (which might more appropriately be called "the self-development program") may be represented by the simple block diagram in Figure 1. (see next page)

Activities which are recommended for the implementation of such a program are shown in Figure 8. (see next page)

Although some of the activities shown in Figure 2 could be combined logically under one title, they have been shown separately for emphasis. The activities are discussed in the following sections. The program is designed to minimize cost to the company and maximize the effort of the individual by providing ample guidance and incentive.

It is assumed that the main features of the program are made known to all personnel. For illustrative purposes, any detailed discussions will center around engineers, although the program recommended is general in nature.

Analysis and Evaluation—The manpower development office should provide an analysis and evaluation service to help individuals determine their interests and abilities. It should be the responsibility of the individual to request such an analysis and evaluation. This is the first opportunity for the individual to take the initiative. Further, many people may be satisfied in their current work, or for other reasons may not wish to have an analysis and evaluation of themselves made. There is thus a potential cost saving over plans that draw in the unwilling, disinterested, or neutral individual through blanket plans.

Interests and Abilities—The determination of interests and abilities is probably best made by trained psychologists. Obvious sources as bases for such determinations are:

1. Psychometric tests of aptitudes and interests.
2. Individual's statement of interest and aptitudes.
3. Other people's evaluation of the individual.
4. History of success and failure patterns.
5. Scholastic interests.
6. Outside activities and hobbies.

Evaluation—Following the analysis of the employee's interest, his strong points and his weak points, an evaluation of these should be worked out between the employee and the counselor. It is essential that the employee really be convinced of the evaluation worked out and that he not just superficially accept the evaluation, since true acceptance is the foundation of the self-development program to follow. The counselor should therefore be highly skilled in psychological techniques in order to help the individual gain insight.

Guidance—Determination of a Goal. A definite goal should be established by each employee, with assistance provided as he requests. While a long-range goal is subject to change, it nevertheless is essential to have one. Questions that may be asked are:

1. What field or related fields are you interested in?
2. Do you wish to become a specialist or a consultant?

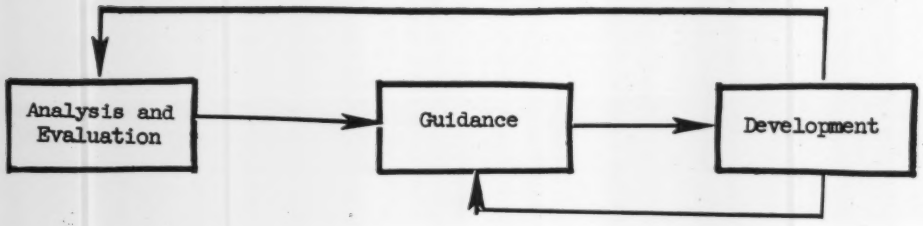


Figure 1

Manpower Development Program

3. Do you wish to direct the work of others (supervisor, executive)?
4. Do you prefer line or staff work?

It should be ascertained that the employee is fully aware of the rewards and responsibilities connected with his choice. Short-range goals should then be established.

Schedule of Progress—A definite time schedule of progress should be established. The employee should aim, through his contributions, to follow this schedule in his achievement of short-range goals. If over a period of years he is getting further and further behind, it may be that re-evaluations will indicate that his long-range objective may have to be modified. On the other hand, analysis may indicate some outstanding weak points that the individual may overcome by greater effort.

Program—A philosophy acted upon by some companies is that to develop engineers, train them intensively in engineering; to develop financial people, train them intensively in finance; to develop production leaders, train these people intensively in manufacturing. In this philosophy, no parallel effort is made to encourage the man to broaden himself. That this philosophy is short-sighted is made clear when these executive leaders have risen to the top of their functional components and their next advancement would be to positions where a working knowledge of all the functions of the business is required. The expedient solution of special superficial training is then often adopted, a solution that can hardly be acknowledged as satisfactory. In the case of the specialist or consultant, he finds himself in the position of being able to solve problems, but unable to see those problems which are of most import to the business, or even having seen the problem, unable to evaluate his work in its relation to the whole business.

The philosophy upon which the proposed program is founded is quite different. It is recognized that in the early stages of a man's career, progress is made, usually, by his gaining competence in a single field. However, even at this early stage, the man should be spending a portion of his time in gaining an understanding and working knowledge of the major functions of an enterprise. For simplicity, assume these major functions are:

1. Engineering
2. Manufacturing
3. Marketing
4. Finance
5. Administration (or auxiliary operations)

The engineer might, at the beginning of his career, devote 80% of his effort to developing his knowledge of engineering and 20% to developing his knowledge of the other four functions. As his competence in engineering increases over the years, the emphasis, on his development program should shift so that he spends, say 50%, of his development effort on the other four functions. This broad type of program will provide industry with men accustomed to think in terms of the ultimate objective of the business and its relation to society. The program outlined below includes activities currently carried out by many organizations, but includes suggestions which may be novel.

Work Assignments—Either the specialist or the would-be executive may develop himself in one component of the organization, or in a few components at the most. Often it is to his advantage to try to work under the most outstanding technical men in his fields. In other cases, the specialist may feel he develops faster when thrown on his own. At any rate, a plan should be established and the individual should be given every assistance possible within the needs of the organization to carry out its prime mission.

Educational Program—The educational program should be administered by the manpower development group since education should be a part of an integrated development program.

The formal educational program in many companies is, of course, well established. It is up to the individual, therefore, to make his plans for both college work and company courses. Again, the counselor should provide his experience in assisting the individual to plan an integrated long-range program in advance.

Many men, because of their assignments, do not have evenings free on a regular basis. Information on correspondence courses should be gathered by the personnel counselor and placed at the disposal of these men. Excellent extension courses in American law and procedures, engineering subjects, accounting, etc., are offered by various

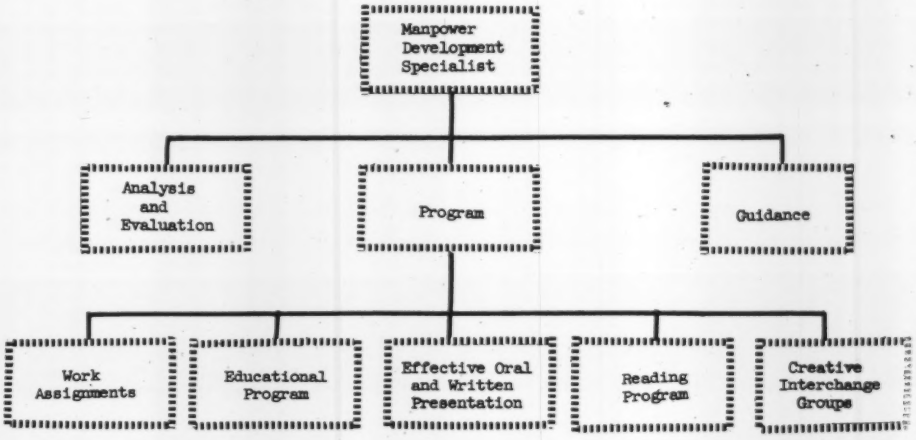


Figure 2

Activities Sponsored by the Manpower Development Specialists

extension schools and approved resident universities.

Effective Oral and Written Presentation—It is an established fact that successful leaders, as a group, are highly skilled in self-expression and persuasion. Though not a sufficient condition, such skills are almost a necessary condition for success. Ideas are worthless if they cannot be communicated to others, and in many cases they are still worthless when communicated if they do not move other people to action.

THERE are many ways for the individual to improve his ability to express himself, and he must plan to make the most of every opportunity to present his ideas orally to groups. Each letter he writes and each report he prepares represents an opportunity for the individual to extend himself. Study of the principles of speaking and writing through reading and courses are valuable, naturally.

It is so important for the individual to achieve effectiveness in his presentation, that special attention should be paid to this attribute. This may be done by periodic review and measurement of his progress in the form of a self-rating, say, twice a year. A standardized rating chart could easily be prepared by the manpower development specialist and given to the individual for his use. Once again, it may be noted that the burden of action is on the individual, but that the highly specialized knowledge of the personnel development group is placed at his disposal.

Reading Program—With the aid of the manpower development specialist, each participating individual should make out a list of books he will read during the next year or two. This list should consist of three types of books:

1. Technical books in his field.
2. Books on various other aspects of business.
3. Cultural and inspirational books.

Company libraries often have a fine collection of scientific technical books and literature. However, books on other phases of business are conspicuously absent. The manpower development group in conjunction with the librarian should plan the accumulation of such books. Typical books listed under (2) above are:

Administrative Action by Newman
The Practice of Management by P. Drucker
Library of Business Management (5 volumes)—McGraw-Hill Publishing Co.
How Am I Doing? by R. F. Moore
Wake Up Your Mind by Alex Osborne
The Responsibilities of Business Leadership —Harvard University Press
The Art of Plain Talk by Dr. R. Fleisch
Top Management Organization and Control —Stanford University Press
Technique of Executive Control by E. H. Schell

The public library should be the source of cultural and inspirational books. Books in this category are:

The Mature Mind by H. A. Overstreet
A Study of History by A. J. Toynbee
How to Win Friends and Influence People by D. Carnegie
The Power of Positive Thinking by N. V. Peale
The Life Stories of America's 50 Foremost Business Leaders by B. C. Forbes

Besides the "book-list" reading program, the participant in the program should be encouraged to subscribe to and/or read regularly one or more periodicals such as Fortune, Business Week, Harvard Business Review, or Dun's Review and Modern Industry, as well as periodicals in his own field.

At this point, such a reading program may seem overwhelming to some individuals. However, the rapid reader will experience no difficulty in carrying out such a program. For the slow reader, there are two choices: (1) reduce the reading program and stretch it out, or (2) learn to read faster.

The manpower development specialist is the key to the latter solution. A reading improvement program should be set up with classes conducted after work. Supplementing the classes, or in lieu of them if necessary, a tachistoscope or one of the special reading improvement devices for individual use should be purchased and made available to employees.

Creative Interchange Groups—The plan of creative interchange groups is for exceptionally ambitious men. Under this plan, all who are interested would notify the manpower development specialist. Two men from each function (such as engineering, accounting, etc.,) would be assigned to a group. The groups would meet once a week on a continuing basis, except during the summer months. If one man drops out because of transfer or because of irregular attendance, another man would be taken into the group. The creative interchange group would meet after hours at work or at homes of the members.

The purpose of the creative interchange group is twofold. First, such a group is designed to give each man a good understanding of all operations of his Company. Secondly, such a group will stimulate the individuals to think constructively of the problems of the whole business.

The objectives of the creative interchange group are attained by the following procedure. The members of the group representing a particular operation discuss their operation and its problems in a series of meetings. The other members are free to ask questions about how or why any activity is carried out. After the series is complete, members then discuss means for solving any problems presented, and ideas for improving procedures. Another series of talks is then presented by the members of another operation, and so on. These series may be planned to be of such thoroughness and length, that two or three years may be required to complete them all.

The advantages to the individuals participating are numerous:

1. Increased knowledge of all company operations.
2. Development of skill at oral presentation.
3. Development of creative thinking.
4. New ideas for the individual's own work.
5. Development of better personal relationships with people in other operations.

The advantages to the company, attained at practically no cost, are:

1. Introduction of fresh ideas from stimulation of creative thinking.
2. Men better prepared to handle more responsibilities with a broader insight of company operations and objectives.

Recapitulation—This outline presents a philosophy of *integrated,* long-range, aggressive planning for the development of all individuals who desire to achieve to the limit of their capabilities. In this type of plan, the effort is supplied by the individual; the guidance and services are provided by the company. The economic and social rewards to the company of a completely integrated program would be great. The spirit of the individuals participating in such a program might well be described in the words of Woodrow Wilson:

> *"Surely a man has come to himself only when he has found the best that is in him, and has satisfied his heart with the highest achievement he is fit for. It is only then that he knows of what he is capable and what his heart demands."* ■

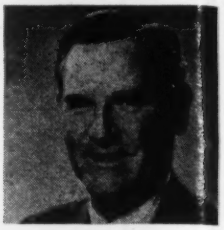
MAY CHAPTER ACTIVITIES

CHAPTER	SUBJECT	SPEAKER	TITLE	PLACE	DATE
Alabama	Panel Discussion-Labor Relations and Arbitration	Henry Baker, Moderator	Commissioner, Federal Mediation & Conciliation Service	Tutwiler Hotel	14
Baltimore	Incentives as a Basis for Corporate Profits	James F. Lincoln, Sr.	President, Lincoln Electric Company	Sheraton Belvedere	7
Binghamton	"Materials Handling and Application of Partial Automation to Warehouse Functions"	Curtis H. Barker, Jr.	Link Aviation	Carlton Hotel	8
Boston	"Work With Work Simplification"	Herbert F. Goodwin	Asst. Professor, Industrial Management—Mass. Inst. of Technology	University Club	2
Bridgeport	"Selecting Young Executives"			Algonquin Club	7
Central Penna.	The New Role of Management in American Business and Industry	Harold R. Bixler	Exec. V.P., S.A.M.	Student Union Building, State College	23
Charlotte	"Getting The Most Out Of Your Business Insurance Program"	John Wesley Fox	Duke Power Co.	Mecklenburg Hotel	13
Chicago	The Retiring Employee; Pension Plans	J. Salmu	Fennia Laboratories	Toffenetti's Restaurant	20
	Pros and Cons Of Union Participation In Establishing Work Standards	S. H. Torff	Att'y. Seyforth, Shaw & Fairweather	Furniture Club of America	21
	Some Current Developments in Management Science	A. Charnes	Dir. of Research, Purdue University	Hardings Presidential Grill	7
Clearing	"Business Men's Responsibility"	Charles R. Sligh, Jr.	Sligh Furniture Co's.	Clearing Industrial Club	22
Georgia	The Use Of Atomic Energy In Industry	Dr. George Reynolds	Asst. Prof. of Physics Princeton University	Elks Club	16
Greensboro	Annual Ladies' Night			Plantation Supper Club	17
Greenville	Employee Motivation	Dr. Wm. McGehee	Director, Personnel Research & Training Fieldcrest Mills, Inc.	Poinsett Club	8
Hartford	Guest Night			University of Conn.	9
Kansas City	Improving Production Through Controls	George R. Elliot	Vice President, Gustin-Bacon Mfg. Co.	Pickwick Hotel	21
Knoxville	The Wives Role In Management	V. C. Henrich	Vice President and Plant Manager, Rohm & Haas Co.	Deane Hill Country Club	14
Lancaster	Plant Visitation "Labor Management Relations"	George B. Meany	President, A.F.L.-C.I.O.	Knoxville Utilities Board Hotel Brunswick	28 21
London and District	Plant Visitation Annual Business Meeting			DeWalt Mfg. Co. Hook's Restaurant	21 16

MAY CHAPTER ACTIVITIES

CHAPTER	SUBJECT	SPEAKER	TITLE	PLACE	DATE
Long Island	The Administration and Techniques of Materials Handling				27
Madison	The Merger After 18 Months	Alvin Hayes	President, IAM, AFL-CIO	Spanish Cafe	14
Milwaukee	Panel Discussion — Incentive vs Measured Dry Work	Prof. H. B. Rogers, Mr. E. A. Cyrol	Northwestern University Pres. E. A. Cyrol & Assoc.	E. S. M. Building	9
Montreal	Annual Business Meeting			Ritz-Carlton Hotel	8
Nashville	"Ladies Night"—Family Organization and Management"	Harry A. Hosey		Hermitage Hotel	9
New Haven	"Ladies Nite"—Annual President's Report			DiNicola's	16
	Plant Tour			R. Wallace & Sons Mfg. Co.	16
North Alabama	Sears Roebuck Personnel Plan	James Patrick Galloway	Regional Personnel Supvr., Sears Roebuck & Co.	Russel Erskine Hotel	8
N. E. Penn.	"Production Planning and Control"	Kenneth Walker	Foster Wheeler Co.	Hotel Sterling	6
Pittsburgh	"Long Range Planning — A Guide to Decision"	Russell B. Read	Planning Director, Westinghouse Elec. Corp.	Gateway Plaza	16
Portland	Management Development	Mr. Savage	Portland University	Hyster Company	22
Providence	Communication In Modern Management	Harrison F. Dunning	Vice President, Scott Paper Company	Brown Faculty Club	2
Raritan Valley	Hospitals are Everybody's Business	George M. Goettelman	V. P. Civic Affairs for S.A.M., Director, Industry's Advisory Board for Hospitals	Roger Smith Hotel	22
Reading	Management and Labor at the Bargaining Table — An Arbitrator's Viewpoint	G. Jay Anyon	Prof. Labor Relations, Wharton School, U. of P.	Iris Club	13
Richmond	Taking A. Fresh Look At The Job Of A. Manager	John B. Joynt	American Enka Corp. President, S.A.M.	John Marshall Hotel	16
Sacramento	Case Study of Ampex Corporation	George I. Long	Pres. Ampex Corporation	Capitol Inn	7
Tren.-Del. Valley		James T. Mitchell	U. S. Secretary of Labor	Hotel Hildebrecht	24
Twin City	Election of Officers Meeting				9
Washington	Logistics Systems and ADP	Col. Robert Kirby	USAF	General Accounting Office Auditorium	2
Western N. C.	Annual Forum Meeting and Ladies' Night			The Manor,	15
Wilmington	Better Management Through People	Dr. F. F. Bradshaw	Pres. Richardson, Bellows Henry & Co.	Lord de la Warr Hotel	14
Worcester	Ladies' Night			Worcester Airport	20

Mr. McSweeney is a Director of the American Hard Rubber Company, the MacFadden Publications, Inc., National Blank Book Company, the Perkins-Goodwin Company, Shenango China, Inc., and the Southland Paper Mills, Inc. He is a Member of the Marketing Task Force, School of Industrial Management at M.I.T., the American Arbitration Association and the National Heart Committee. He has been associated with the Conde Nast Publications and Butterick Publications, and is the author of "Organization for More Efficient Management" and other articles on organization and business problems. He is a guest lecturer at New York University and at Northwestern University.



EDWARD McSWEENEY

Management And Automation

by Edward McSweeney

Vice President and Treasurer
Perkins, Goodwin Company
New York City

ALTHOUGH man invents machines and the laws that govern them, he apparently cannot resist the temptation to act like his own creations.

Preparing people for management—an endeavor you would hardly think susceptible to mechanization—has succumbed completely. And as automation draws nearer, look for more new management training hocus-pocus than in a digital computer.

The lure to imitate the machine is best explained by the common saying that you are "*reducing* it (whatever it may be—in this case management) to a science". You get yourself a formula and *reduce* your problems, you hope, to just about nothing. Thus Congressmen are always passing new tax laws to *reduce* the inequities of the old. Personnel directors are sure to have a new test up their sleeves to *reduce* the laxities of the ones that went before.

And the same is true, generally speaking, about training for management.

Not long ago the magic way was "organization". Authorities held that if business only would chart itself correctly and then stay within channels, the path of progress would be smooth and uneventful. The idea is fine, just as trying to *reduce* the Mississippi to a single river-bed is fine, if you could only get it to stick with the reduction.

"Decentralization" was another passing theme, until the experts took a second look and discovered that they hadn't *reduced* the burden at the top at all. If anything, decentralization meant tighter headquarters control of management and services.

The latest vogue is special conferences, seminars, and refresher courses. The thinking here seems to be that if you pack enough people into an auditorium and expose them to the correct informational *reductions* via graphs, charts, slides, and closed-circuit TV their management IQ will be lifted. It's a good excuse for getting away from home territory (all the latest conferences even include recreation interludes so that the fumes from the office won't stifle the fresh air of the classes). Anyhow, a convention by any other name looks better on the expense record.

But I have yet to meet a good manager after a conference who wasn't a good one before he went in.

Moreover, if you stand back and look closely at these "reductions" of management to a scientific pattern, you will note that the pattern is sure to be colored by the background or experience of the men currently at, or near, the top. When the dominant individuals have come up through the sales department, the emphasis is on marketing and promotion. When the accounting mind takes over, budgets, controls, systems and operational analyses rise to the fore.

With automation, the scientist-mathematician-engineer will be in his glory. And the managerial training tricks that can be woven around this magical background are so fabulous that a new crop of management experts is sure to appear, ready to *reduce* it all to easily handled proportions.

Note that the word "automation" itself has a cut-to-order surprise in it. Automation isn't just more mechanization. It is based on the feed-back principle, which means that a built-in "memory" makes the machine check itself and correct its own errors at blinding speed.

The simplest example is the thermostat on your heating system. You tell it you want a temperature of 70. Immediately it starts the system running. If the temperature goes to 71, the thermostat senses this error before you do and shuts off the furnace. Conversely, if the temperature falls to 69, the thermostat compares 69 with its "memory" of 70 and—again—before you are aware of the deviation from your wishes it makes the proper correction by switching the heater on.

What an idea for a new twist in managerial training, at least word-wise. Right memory, right correction, right solution.

But again this question comes to my

mind: Is this any different from what we are doing now? It's still formula-feeding, and the product can be only as good as the "information" or "memory" or "science" it is nourished on. The danger is that we shall continue to create an army of *middle-management robots* who, when confronted with real policy problems, stumble as the magnetic tape that was fed into them runs out.

Perhaps a more fruitful approach would be a comparison of the electronic brain with the qualities of the human mind. Let us grant that some of the performances of electronic devices are far faster and more reliable than the human kind, just as the hammer is a more effective instrument of mayhem than the fist.

But now take the common act of *recognition*.

We can recognize a friend or acquaintance by his voice on the phone, by the way he walks, by the color of his hair, by some quirk in his posture. Yet the physical and mental processes involved in this everyday act are so complex that they defy definition. An expert on automation said not long ago that it would be impossible to program the act of recognition on tape, and if that were to be tried, any computer with tubes enough to give it sufficient "memory" would have to be larger than the Empire State Building.

Now recognition is an integral part of management; not just recognition of people and things, but of problems and conditions, which are intangible and far more complex and nebulous. When is the right time to expand or contract; to change a model or a price; to slow down or speed up; to add inventory or build cash reserves; to borrow or seek new investment? To adhere to the course taught in the classroom or strike out on a new one? Is not this the essence of true top management?

All this points, it seems to me, to the conclusion that management is more an art than a science. Yet the methods used to train and develop managers for the future are premised on the assumption that management can be *reduced* to a science.

To be realistic about it, the arts do make excellent use of the sciences. The painter must know the chemistry of pigments. The sculptor either learns something about engineering or sees his statues fall flat on their faces. The architect must reckon the stresses, strains, and fatigue. A good photographer would be lost without an inkling of optics.

But one could know all about chemistry, engineering, stresses in girders, optics, or electronics and not produce a decent painting, statue, building, or portrait.

So it is with management. The innate, inherent ability of a man to practice the art of managing means more toward success or failure than all the tools or equipment and methods than his environment can provide. In fact, one meaning of "manage" is found in the colloquialism "We can *manage* without . . ." this or that.

Perhaps I have raised more questions than now can be answered. The tentative conclusion, it seems to me, is that we should devote more time and efforts to *discovering* management potential and encouraging it when found than chasing the will-o'-the-wisp of "management training and development" as currently practiced.

Until we proceed on this sounder basis, we must continue to gamble that men will rise despite the jungle gym of training apparatus that we now erect about them. Also, that out of the mistaken rejects of our card-sorting methods the true saviors of business may yet arise. The Scriptures remind us of what happened before and is bound to happen again: "*The same stone which the builders rejected is become the head of the corner*".

I don't like to say that "the problem will be solved when thus and so is done" because that only invites the mechanistic approach all over again. Rather, I'd prefer to suggest that a new perspective is in order first of all—a change of focus from mechanics to art, from reduction to recognition. ■

(*Continued from page* 14)

The Span of Control: A Reply

journey stretching far into the future. Many individuals of genius and near-genius must make their contribution to research, to experiment, to synthesis before even the beginnings of an adequate 'discipline' will emerge. The vast majority, as in the evolution of medicine, will be quickly forgotton."

Now Colonel Urwick may feel that I am playing Aunt Sally (again)—at least quoting his words out of a context that strongly qualifies them. My point in doing so is to suggest that perhaps they state a deeper truth than he fully and consciously recognized in writing them; and that his emphasis on the immediately and allegedly "practical" may not do justice to the long-range needs of a science of management.

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